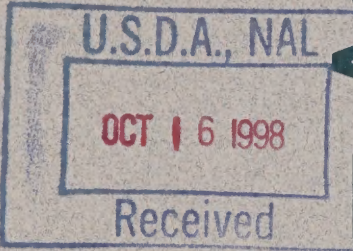


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Agricultural Research Service



U.S. Department of Agriculture
Horticultural Research Laboratory
Orlando, Florida

History and Mission

The U.S. Horticultural Research Laboratory was founded in 1892 and originally located in Eustis, Florida. The laboratory was moved in the 1930's to Orlando, where it has remained since. The present facility was dedicated in 1952 and encompasses approximately 4 acres. The laboratory is located adjacent to Lockhaven Park which contains the history and science museum, art center, and children's theater for the City of Orlando. In addition to the laboratory in Orlando, there is a 500-acre farm located north of Orlando near Leesburg. The farm is the site where most of the breeding and many of the field experiments are conducted. A new National Citrus Germplasm Repository was constructed at the farm in 1986.

The laboratory has enjoyed a good working relationship with the citrus industry throughout its history, and its scientists are frequently asked to provide assistance to the industry. The laboratory has also had good cooperative research relationships with the University of Florida and the University of Central Florida. Many of the professional staff hold adjunct faculty positions with these universities, and have participated in the training of undergraduate and graduate students.

The exact number of personnel associated with the laboratory varies seasonally. Usually we have about 65 people employed at any given time. There are five functional Research Units within the laboratory and they are as follows:

Subtropical Insects Research Unit

The Unit conducts basic research on insect pests of citrus and other subtropical and tropical fruits and vegetables. Information on the biology, biochemistry, chemistry, and physiology of the insects and their interactions with plants and other organisms (viruses, fungi, bacteria, etc.) is developed to improve or design new management strategies. Research includes evaluation of insect vectors of tristeza and other citrus diseases, biological control of citrus insect pests by use of nematodes, isolation of insect proteins that carry plant products, metabolism of plant products, chitin, insect hormones, xenobiotics, and study of membrane transport systems.

Richard T. Mayer, Laboratory Director

Research Leader, Research Entomologist

William Schroeder, Research Entomologist

Jeffrey Shapiro, Research Entomologist

Raymond Yokomi, Research Entomologist

Export and Quality Improvement Research Unit

The Unit conducts a program of basic physiological, biochemical, and pathological research on postharvest problems of horticultural crops. Specifically, the research is to determine the physiological basis of chilling injury by biochemical studies of cell components; develop technologies for increasing shelf life and maintaining quality and condition by environmental manipulation and improved handling methods; and assist in development of effective, nontoxic quarantine treatments for commodities in the domestic and export arena. Results of the research are used by industry to expand markets and to maintain quality and reduce postharvest losses of horticultural commodities.

Roy E. McDonald, Research Leader, Research Horticulturist
William R. Miller, Agricultural Marketing Specialist
Harold Nordby, Research Chemist

Horticulture-Breeding Research Unit

The Unit conducts applied and basic research to accomplish genetic exchange of citrus germplasm to develop scions and rootstocks having enhanced tolerance of environmental stress, resistance to diseases and pests, and improved fruit quality and yield. Specifically, desirable genetic traits are identified within species of *Citrus* and among closely related genera and species, and are combined by conventional breeding and more innovative transfer methods to overcome barriers to genetic exchange. Results of this research are new, and superior commercial scions and rootstocks as well as breeding lines with unique combinations of desirable traits that are made available to citrus breeders and other researchers.

C. Jack Hearn, Research Leader, Research Geneticist
Donald J. Hutchison, Research Geneticist
Herbert C. Barrett, Research Geneticist
Randall P. Niedz, Research Geneticist
Michael L. Cagley, Horticulturist (Curator)

Subtropical Plant Pathology Research Unit

Research is conducted on bacterial, fungal, nematode, and viral diseases of citrus and subtropical crops. This research is helping to provide information for the improvement of crop production. Areas of specific research include germplasm improvement for disease resistance, development of rapid, practical, and economical methods of pathogen identification, disease characterization, biological control of diseases, physiological characterization of host-parasite interactions and epidemiology.

David T. Kaplan, Research Leader, Research Plant Pathologist

Stephen M. Garnsey, Research Plant Pathologist

Tim R. Gottwald, Research Plant Pathologist

Stanley Nemecek, Research Plant Pathologist

Heinz K. Wutscher, Research Horticulturist

Stress and Bioregulation Research Unit

Research is focused primarily on extensive searches into alternatives/solutions to environmental stresses that are causing major losses in citrus growth, survival, and production. Two major problems are devastating losses resulting from periodic freezes and a serious tree decline, citrus blight. Research approaches include differential thermal analyses, photosynthetic efficiency, genetic tolerance, physiochemical analyses, growth modifiers, biological probes, soil/tree relationships, and controlled environments. Total effort is largely basic with applied development as needed in personal and team research.

George Yelenosky, Research Leader, Plant Physiologist

Michael G. Bausher, Research Plant Physiologist

Joseph C. V. Vu, Research Plant Physiologist

Heinz K. Wutscher, Research Horticulturist

Support Units

Administration: C. Wayne Moore - Administrative Officer

Foundation Farm: Randall Driggers - Superintendent

Greenhouse: Larry Clinton - Supervisor

Graphic Arts: Randall Smith - Photographer

Secretarial: Ann Harris - Supervisor

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